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Aggression, social cognitions, anger and sadness in bullies and victims

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Background: The present study aimed to investigate children's social information processing (SIP) and emotions in the bullying situation, taking into account reactive and proactive aggression. More specifically, we investigated the way in which children interpret social information, which goals they select, how they evaluate their responses and which emotions they express in hypothetical situations. **Method:** The participants comprised 242 Dutch children (120 girls and 122 boys; mean age: 117.2 months), who were assigned by means of peer nominations (Salmivalli, Lagerspetz, et al., 1996) to one of the following roles: bully ($n = 21$), follower of the bully ($n = 38$), victim ($n = 35$), defender of the victim ($n = 48$), outsider ($n = 52$) and not involved ($n = 32$). Sixteen children (including 3 bully/victims) were not given any role. The reactive and proactive aggression scale (Dodge, & Coie, 1987) was filled out by teachers in order to test the association between these types of aggression and involvement in bullying. Children were presented with ambiguous scenarios and responded to questions about attribution of intent, goal selection and emotions (anger and sadness). In addition, two questionnaires were administered to children: one assessed perceived self-efficacy in performing aggression, inhibiting aggression and using verbal persuasion skills, and the other assessed expected outcomes from behaving aggressively or prosocially. **Results:** Results showed that while reactive aggression was common in bullies and victims, proactive aggression was only characteristic of bullies. Both bullies and victims, compared to the other children, scored higher on hostile interpretation, anger, retaliation and ease of aggression. Bullies and followers claimed that it was easy for them to use verbal persuasion, while victims turned out to be the saddest group. All children, irrespective of their role in the peer group, thought that aggressive as well as prosocial behavior was more likely to produce desired results from a friendly peer than from an aggressive one. **Conclusions:** Bullies and victims seem to be similar in reactive aggression, SIP, and in the expression of anger, but the motivations which lead to their behavior may be different, as well as the final outcomes of their acts. **Keywords:** Bullying, victimization, reactive aggression, social information processing, emotions. **Abbreviations:** PRS: Participant Role Scale; RePro: Reactive and Proactive Aggression Questionnaire; SIP: social information processing.

Bullying is a phenomenon characterized by negative actions towards a peer, with the intention to hurt (Olweus, 1991, 1993). The actions of the bully are repeated over time and may include physical or verbal aggression (Olweus, 1993; Boulton, & Underwood, 1992), and relational harassment (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Crick, & Grotpeter, 1995; Wolke, Woods, Bloomfield, & Karstadt, 2000), which harms others by means of social manipulation, social exclusion, and malicious rumors. There is usually an imbalance of power between the bullies and their victims. Bullying takes place within relatively small and stable settings (like classes), which are characterized by the presence of the same people (e.g., children). Generally, children other than the bullies and their victims are also involved in the bullying process and may actually maintain the bullying by supporting the bully or failing to defend the victim. Salmivalli, Lagerspetz, Björkqvist, Österman, and Kaukiainen (1996) suggested that all the children in a particular class play a role in bullying and that only few of them may be considered to be uninvolved.

Many studies have investigated the characteristics of children involved in bullying (Boulton, &

Smith, 1994; Hawker, & Boulton, 2000; Pellegrini, Bartini, & Brooks, 1999; Smith, & Brain, 2000; Smith et al., 1999), but not much is known about the social cognitions and emotions of bullies and victims. How do bullies and victims encode and interpret social cues? How do they respond to them? Are they really all that different? The general goal of this study was to apply the social information processing (SIP) approach (Crick, & Dodge, 1994; Dodge, 1986) to the bullying phenomenon in order to investigate how bullies and victims read social information and how they react to it. The role of emotion was also investigated. Furthermore, we made a distinction between reactive and proactive aggression to explain the relationship between bullying and SIP, using as a link those studies which investigated the SIP of reactively and proactively aggressive children (Crick, & Dodge, 1996; Dodge, & Coie, 1987; Dodge, Lochman, Harnish, Bates, & Pettit, 1997).

Social Information Processing (SIP)

The SIP theory was reformulated by Crick and Dodge (1994), after being initially presented by

Dodge (1986). It postulates that social information processing takes place in five mental steps, in a circular formula, leading to a final behavioral enactment (step 6). In step 1, children (or people in general) code social cues from the environment and focus on those that are more important through selective attention. These cues are then given meaning (step 2) through interpretation of others' intentions and causal attributions. In step 3, children clarify their goals, i.e., what they want to achieve in order to produce particular outcomes. In step 4 children search for possible responses from long-term memory and are influenced by the attributions they have made and by the goals they want to achieve. In step 5 children choose one of these responses by considering the content of the response itself, the outcome they expect from it, and their self-efficacy in performing it. Finally, in step 6, they enact the behavior chosen. This, in its turn, requires monitoring, during which attention to new cues to be encoded is employed. After step 6 the cycle starts again (Dodge, & Crick, 1990), because although individuals are engaged in parallel processes at the same time, the single stimulus follows a linear sequence in which feedback loops are possible across the steps (Crick, & Dodge, 1994; Pakaslahti, 2000).

Processing the whole cycle in a skillful way leads to social competence, while biased processing may lead to aggression and social deviance (Crick, & Dodge, 1996; Dodge et al., 1997; Pettit, Polaha, & Mize, 2001; Zelli, Dodge, Lochman, Laird, & Conduct Problems Prevention Research Group, 1999). Aggressive children encode fewer and less benign social cues, because of memory deficits or selective attention (step 1), attribute more hostile intentions (step 2), select goals which damage the relationship (step 3), generate fewer prosocial responses (step 4), evaluate aggressive responses more favorably, expect positive outcomes from aggressive behavior, and feel more self-confident in performing it (step 5). Finally, this process leads to the enacting of aggressive behavior (step 6) (Dodge, & Crick, 1990; Quiggle, Garber, Panak, & Dodge, 1992).

We used the SIP approach for several reasons. First of all, it has been applied very successfully to explain the thinking of aggressive children (Crick, & Dodge, 1999; Pakaslahti, 2000; Pettit et al., 2001). Second, it makes it possible to study different aspects (steps) of social processing as well as the links between early deficits and later performance. Third, on the basis of SIP research, a set of tested materials have become available for measuring the various steps (Camodeca, Goossens, Schuengel, & Meerum Terwogt, 2003; Crick, & Dodge, 1994; Orobio de Castro, 2000; Quiggle et al., 1992; Perry, Perry, & Rasmussen, 1986) and these can be applied in research on bullying.

Emotion

Crick and Dodge (1994, 1999) have indicated that the SIP framework would be enhanced by considering the role of emotion as well. Lemerise and Arsenio (2000) integrated emotions and cognitions in the model and claimed that all the steps in the process are affected by emotion. Encoding and interpretation of social cues (steps 1 and 2 of SIP) can be influenced by anger, mood or type of relationship with the perpetrator; selection of goals (step 3) by anger or empathy with the victim; response generation and decision (steps 4 and 5) by pre-existing emotions, representation of past experiences, or capacity to regulate emotions; final enactment (step 6) by emotion control or capacity to read and convey emotions.

Behavior is influenced by emotion, which may arise from thoughts (Graham, & Hoehn, 1995; Weiner, 1995): 'cognitive and emotional factors are (...) interrelated dimensions of the same reaction or process' (Loeber, & Coie, 2001, p. 395). Children who are extremely intense in their experience and expression of emotion (emotionality) and who present poor emotion regulation skills have been found to be at risk of problem behaviors and social maladjustment (Eisenberg, & Fabes, 1992; Loeber, & Coie, 2001; Murphy, & Eisenberg, 1997; Pakaslahti, 2000; Pettit et al., 2001). Negative emotions, which were found in bullies and victims (Karatzias, Power, & Swanson, 2002), decrease the likelihood of adequate behavioral responses and restrict cognitive capacity to solve problems (Pakaslahti, 2000). Anger is also a characteristic of reactively aggressive children (Dodge et al., 1997; Dodge, & Coie, 1987). Orobio de Castro (2000) found that antisocial boys said they became angrier and less sad when provoked, and mentioned fewer adaptive emotion regulation strategies than the control group. In view of these findings we included emotions in our study.

Reactive and proactive aggression

One of the most accepted distinctions between different types of aggression is the one between reactive and proactive aggression (Dodge, 1991; Dodge, & Coie, 1987; Pellegrini et al., 1999; Price, & Dodge, 1989; Pulkkinen, 1996; Salmivalli, & Nieminen, 2002). Reactive aggression is a defensive response to provocation or trouble, a way to defend oneself and to retaliate against abuse, and is accompanied by anger. Proactive aggression, on the other hand, is a goal-directed, deliberate and cold-blooded action, useful to achieve goals, offensive and provocative, requires no stimulus and may be characterized by pleasure or satisfaction (Boulton, & Smith, 1994; Crick, & Dodge, 1996; Roland, & Idsøe, 2001).

Are bullies and victims reactively and/or proactively aggressive? Crick and Dodge (1999) and Price and Dodge (1989) advanced the hypothesis that bullies are proactively aggressive, while Kochenderfer

and Ladd (1997) reported that victims display reactive aggression. However, recent studies have found that bullies show both reactive and proactive aggressive behavior, while victims only show reactive aggression (Camodeca, Goossens, Meerum Terwogt, & Schuengel, 2002; Pellegrini et al., 1999; Roland, & Idsøe, 2001; Salmivalli, & Nieminen, 2002).

Crick and Dodge (1996) investigated differences in social information processing and reported that reactively aggressive children attribute hostile intent to their peers and respond in an aggressive way. Thus, they present deficits in interpreting social cues. Proactively aggressive children evaluate aggression in a more positive way and as a valid means to reach goals. They differ from the others in goal clarification. Similar outcomes have been reported by Dodge and Coie (1987) and Dodge (1991).

Research questions and hypotheses

The present work was aimed at investigating differences and similarities among bullies, victims and the other children in respect to types of aggression, SIP and regulation of emotions. Recently, Karatzias et al. (2002) advanced the hypothesis that when treated as a single group, bullies and victims differ from those not involved in respect to well-being, quality of school life and certain personality factors, and were thus more similar than is usually thought. Some authors (Camodeca et al., 2002; Pellegrini et al., 1999; Roland, & Idsøe, 2001; Salmivalli, & Nieminen, 2002) also found bullies and victims to be similar in respect to aggression. More specifically, both bullies and victims were reactively aggressive, i.e., they responded with anger to provocation and used aggression to defend themselves, while only bullies were proactively aggressive, i.e., they used aggression to harass and provoke. We expected to find the same results in this study.

We surmise that if a child is reactively aggressive and shows deficits at the beginning of SIP (as Crick, & Dodge, 1996, claimed), these deficits continue throughout the whole process and influence every step. If this is the case and if bullies and victims are both reactively aggressive, we may suppose that bullies and victims encode, interpret and react to social cues in a similar way and that they express the same emotions. But if bullies are also proactively aggressive, they may also present biases in the final steps of SIP (Crick, & Dodge, 1996) and their motivation for behaving aggressively may be different from that of the victims. For this reason differences between bullies and victims can still be found.

More specifically, in this study we expected both bullies and victims to display reactive aggression, to encode cues (step 1) in a biased way, to misinterpret ambiguous situations (step 2) and to interpret intent as hostile (Menesini, 1999; Quiggle et al., 1992). As a consequence of this, they may select antisocial goals

(step 3) and respond with counter-aggression. This expectation is based on the finding that it is the perception of the intention which determines the behavioral response rather than the intention itself (Dodge, Murphy, & Buchsbaum, 1984). For this reason, we expected both bullies and victims to claim it was easy for them to react aggressively (step 5). Conversely, we expected bullies and victims to encounter greater difficulty in inhibiting their own aggression.

Bullies were expected to think that aggression would produce tangible rewards and reduce aversive treatment (step 5) more often than all the other children (Crick, & Dodge, 1994; Dodge et al., 1997; Perry et al., 1986). The peer who was the target of the behavior was also taken into consideration, as it was found that less favorable outcomes were expected when interacting with an aggressive peer than with a nonaggressive one (Perry et al., 1986). We did not investigate step 4 for practical reasons, as we considered it too time-consuming to interview these relatively young children about how they thought they would respond, as they already had to answer so many questions. Furthermore, we had investigated response construction in a previous paper (Camodeca et al., 2003). We did not investigate step 6 either, since we were interested in the mental process and not in the ultimate behavior.

As for emotions, we expected both bullies and victims to respond with anger in the face of adversity, as reactively aggressive children do (Arsenio, & Lemerise, 2001; Dodge, & Coie, 1987; Dodge et al., 1997). Moreover, we expected victims to show more sadness than their classmates when confronted with an unpleasant situation (Boulton, & Underwood, 1992; Quiggle et al. 1992).

To sum up, the purpose of the present study was to investigate similarities and differences between bullies and victims in displaying aggression, in SIP and in the emotions of sadness and anger, taking into account multi-informant measures and different roles in bullying.

Method

Sample

The subjects were 242 Dutch children (120 girls and 122 boys) with a mean age of 117.2 months ($SD = 8.4$), from the fifth (49.6%) and sixth grade (50.4%) of four elementary schools in the Netherlands. The pupils came from various socioeconomic backgrounds, but the majority were from middle class families. Fewer than 5% were of non-Dutch origin. Parents were asked by letter to consent to their children's participation in the study. The response rate was high (over 90%). The pupils involved in this particular study are part of a longitudinal study and were also tested using other measures at different points in time (Camodeca et al., 2002, 2003).

Procedure

Bullying and victimization were operationalized through a peer report measure, the Participant Role Scales (Salmivalli, Lagerspetz, et al., 1996), as children are the best informants about bullying. Another reason for choosing this instrument was that it has been developed to assess the different roles children may play in the bullying process, and not only those of bully and victim. Pupils were tested individually by trained students in a separate room. They were told that all information would be treated as confidential and that it was better not to discuss what they had said with their peers.

A questionnaire to test reactive and proactive aggression was administered to teachers, who had to rate each child on different items.

Four scenarios were administered individually to children to test the processing of social information from the first to the third step of the model, and to test the emotions of anger and sadness. One questionnaire was used to assess self-efficacy and another one to assess expected outcomes; they tapped the SIP step of response evaluation. The scenarios and the two questionnaires were administered to the group in the classroom.

In this way we could take advantage of a peer report measure, a teacher report measure, and three self-report measures.

Measures

The Participant Role Scales (PRS). The PRS was designed by Salmivalli, Lagerspetz, et al. (1996) to assess roles in the bullying situation. The original questionnaire consisted of 50 descriptors of behavior according to which the children were asked to rate each of their peers and themselves on a 3-point scale. Five scales were constructed: bully, reinforcer of the bully, assistant of the bully, defender of the victim, and outsider. In order to identify the victims the authors used nominations.

Oude Nijhuis (2001) validated the PRS in the Netherlands. Instead of the original rating procedure used by Salmivalli, Lagerspetz, et al. (1996), she employed a nomination procedure in which children nominated one or more classmates for each descriptor. This was found to enhance data collection (cf. Sutton, & Smith, 1999; Sutton, Smith, & Swettenham, 1999b). Further, Oude Nijhuis (2001) added seven victimization items taken from the Aggression and Victimization Scale (Perry, Kusel, & Perry, 1988). In this way a new scale for victims was created and used instead of the original nomination procedure. Using this format, Oude Nijhuis (2001) found that defenders were the most popular, bullies turned out to be rejected or controversial, while victims were mostly neglected. Outsiders predominantly had average status.

We kept the changes made to the PRS by Oude Nijhuis (nomination procedure and victimization items) and in addition we deleted items with the lowest loadings on the factors. The new PRS now consisted of 32 items, which were subjected to a Principal Component Analysis (PCA) with varimax rotation, yielding four factors. The total variance explained was 74.6%. Four

items were deleted because of low loadings ($< .50$) or cross-loadings; the remaining items loaded $.50$ or higher on one dimension. All the bullying items (bully, assistant and reinforcer) loaded on the first factor, which was also found by Salmivalli, Lappalainen, and Lagerspetz (1998) and by Sutton and Smith (1999). But, despite the high correlation among the items for bully, assistant and reinforcer, these authors kept these roles separate on the basis of their content. In the present study, we created a scale for bully and a scale for follower (merging the items for assistant and reinforcer, cf. Sutton et al., 1999b).

The items for defender, outsider and victim loaded on three separate factors, which were kept on separate scales. The number of items and the reliability coefficients for the five scales were as follows: bully (6 items, $\alpha = .97$), follower of the bully (reinforcers plus assistants; 8 items, $\alpha = .93$), outsider (6 items, $\alpha = .91$), defender (4 items, $\alpha = .85$), victim (4 items, $\alpha = .91$). Salmivalli, Lagerspetz, et al. (1996) reported reliabilities ranging from $.81$ to $.93$, and Sutton et al. (1999b) also reported reasonably high reliabilities (ranging from $.55$ to $.88$). Next, the scores were standardized by class using z-scores. We used the procedure employed by Salmivalli, Lagerspetz, et al. (1996) to assign each child a role. A child was assigned a role if the score on the scale designed to assess that role was above the mean and if the difference between this scale score and the next highest scale score was at least $.1$. Pupils who received almost equal scores on two or more scales (i.e., whose difference was lower than $.1$, $n = 13$; 5.4%) were considered as not having a clear role and were not included in the analyses. We made an exception only for the scales of bully and follower, in which case we assigned the role in which the score was highest, even when the difference between the two scores was smaller than $.1$. We found also 3 bully/victims (1.2%), being those children whose scores on the bully or the follower scale and on the victim scale were higher than the mean, while the difference between the pro-bully and the victim scores was smaller than $.1$; scores on the defender and outsider scales were lower than the mean. However, we decided to remove these 3 children from the sample as too few to be included as a separate group.

Ultimately, the sample employed in the analyses consisted of 226 children (108 girls and 118 boys). Of these, 21 (9.3%) pupils were assigned the role of *bully*, 38 (16.8%) the role of *follower*, 52 (23%) the role of *outsider*, 48 (21.2%) the role of *defender* and 35 (15.5%) the role of *victim*. Contrary to Salmivalli, Lagerspetz, et al. (1996), who also labeled those who scored below the mean on all scales as not having a clear role, we considered these children as *not involved* ($n = 32$; 14.2%) in the bullying situation. The incidence of children in each role and the gender distribution are comparable to other studies which used the same instrument (Menesini, & Gini, 2000; Salmivalli et al., 1998; Salmivalli, Huttunen, & Lagerspetz, 1997; Salmivalli, Lagerspetz, et al., 1996). In addition, in our study bullies and followers were more often boys, while defenders and outsiders were more often girls ($\chi^2 = 42.13$ (5); $p < .001$).

The Reactive and Proactive Aggression Questionnaire (RePro). The RePro was developed by Dodge and Coie (1987). The original questionnaire consisted

of 12 aggressive behavior items for reactive (e.g., 'When teased, strikes back') and proactive aggression (e.g., 'Uses physical violence to dominate'), plus 12 filler items. Later the authors decided to limit the two scales to three items each, choosing only the items which loaded highest on the factor analysis. We used 9 of the original 12 aggression items (four for reactive aggression and five for proactive aggression), plus 4 filler items (which were excluded from the analysis). The answer modality was a 7-point scale, instead of a 5-point scale, as in the original version. Cronbach's alphas were .90 for the reactive aggression scale and .93 for the proactive aggression scale. We made use of standardized scores within each class, in order to minimize the effect of the raters.

Scenarios assessing steps 1, 2 and 3 of SIP and emotions. Four stories (Orobio de Castro, 2000) were presented to the children, in gender-appropriate versions, to investigate the first three steps of SIP (encoding of cues, interpretation of cues and clarification of goals), and the emotions of anger and sadness. In these stories a child is interacting with a peer when an unpleasant incident is caused by the peer. Whether this is intentional or not remains ambiguous. An example is: 'Imagine you are taking turns on a computer game with a classmate. When one is finished, it's the other's turn. Now it's your turn and you are doing well. You have already reached the highest level, but you only have one life left. You have never gotten as far as this, so you are really doing your best. The other boy/girl is looking over your shoulder. He/she sees how far you have got. Then he/she says: "Watch out! You have to be quick!" and pushes a button. But it was the wrong one, and now you're dead'.

In order to assess encoding of cues (step 1), children were requested to tell the story again. The number of essential elements (four per scenario: an outline of the story, a report on the importance of the participant's goals, a description of the provocateur's behavior and a description of its outcome) was counted to build the variable *encoding*. Inter-coder agreement among four different raters (trained students) ranged from .66 to .94. Differences in coding were solved by discussion.

To assess attribution of intent (step 2), children had to answer the following questions: 'Do you think the other child is mean? Do you think that he/she did it on purpose? Do you think he/she is happy with what he/she did?' (Answers on a 3-point scale: *No, I don't know* and *Yes*); 'How guilty do you think he/she is?' (Answers on a 5-point scale from *Not at all* to *Very much*). These questions, totaled across four scenarios, were subjected to a PCA, and one factor (*hostility*) was extracted (16 items; 31.2% of variance explained; loadings higher than .44; $\alpha = .85$).

At this point, interrupting the questions on the SIP steps, we asked children three questions about emotions: one for *sadness* ('How sad would you feel?') and two for *anger* ('How angry would you feel if this happened to you?' and 'How angry are you with him/her?'). All answers were on a 5-point scale (from *Not at all* to *Very much*). We ran a separate PCA on sadness and anger questions per four scenarios (57.0% and 49.2% of variance explained for sadness and anger, loadings higher than .70 and .60, respectively). Cronbach's

alphas were .75 for sadness (4 items) and .85 for anger (8 items).

In order to assess children's goals (step 3), we asked pupils: 'How important is it for you... 1) to forget as soon as possible? 2) to feel less angry? 3) to retaliate for what he/she did? 4) to have a nice time together? 5) that the other child does not feel guilty about what he/she did?'. Answers were on a 5-point scale, with higher scores indicating more importance given. Factor analysis (PCA with varimax rotation, 42.75% of variance explained) revealed two factors: *retaliation* (item 3 per four stories = 4 items; loadings higher than .78; $\alpha = .82$) and *prosocial goals* (items 1, 2, 4 and 5 per four stories = 16 items; loadings higher than .45; $\alpha = .89$).

Self-efficacy questionnaire assessing step 5 of SIP. This questionnaire was used to assess response decision by means of perceived ability to use aggression, inhibition of aggression, and assertive behavior. It is a shorter version (24 four-point items describing social situations) of the questionnaire developed by Perry et al. (1986). Children had to rate how easy it would be to perform the behavior described in the item. High scores indicate greater ease in performing the behavior. Two versions, one for boys and one for girls, were employed. Examples of items covering the different components are as follows: *Aggression*: 'In the playground another child bumps into you. Calling him/her bad names is ___ for you'. *Inhibition of aggression*: 'One of your classmates invites everyone to his/her party. You are not invited. You would like to say something mean to him/her, but decide not to. Not saying mean things to that child is ___ for you'. *Verbal persuasion*: 'Some children want to play a game you do not like. Proposing another game that you like more is ___ for you'. In the blanks children had to indicate on a 4-point scale how easy it was for them to perform the specified behavior in that situation by circling one of the following possible answers:

DIFFICULT difficult easy EASY

The item scores were subjected to a PCA with varimax rotation (50.4% of variance explained). Four items were deleted because they showed cross-loadings. All the others loaded above .50 on one of the three expected dimensions. Eight items loaded on aggression ($\alpha = .90$), five on inhibition of aggression ($\alpha = .79$) and seven on verbal persuasion ($\alpha = .80$).

Expected outcomes questionnaire assessing step 5 of SIP. The expected outcome questionnaire was also developed by Perry et al. (1986) and measures the degree to which children are confident a certain outcome will occur if they behave in a particular way in a given situation. It was used to investigate the way in which children decide upon their responses. We presented 16 situations to the children, 12 of which anticipated the consequences of aggressive behavior and 4 of prosocial behavior. These situations involved two different types of target children, who were of the same sex as the subjects. In eight situations (6 for aggressive behavior and 2 for prosocial behavior) the target child was described in advance as aggressive and mean ('bossy, always wants to have his/her way, gets angry very easily, hits people and calls them names'), while in the other eight (again, 6 and 2 for the two behaviors) the target

child was described as friendly and nice ('always friendly, helpful, always knows nice things to do, everyone wants to play with him/her'). In this way we could investigate whether the target's characteristics influenced the children's expected outcomes. The two types of target children were presented in a different order, to minimize the effect of priming.

Examples of the situations are the following: *Aggression*: '(Target child) bullies you at school and calls you names. You call him/her names too, in the hope he/she will stop. What will he/she do now?' *Pro-social behavior*: 'One day you come to school with a packet of crisps. (Target child) sees this packet of crisps and tries to grab it from you. You want to push him/her away, but decide to share the crisps with him/her. Do you think (target child) will still try to get the crisps from you?' Children had to indicate how sure they were that their behavior would succeed in stopping the other's behavior. Ratings were on a 4-point scale, with 1 meaning that the child was very sure that the consequence would occur and 4 meaning that the child was very sure that the consequence would not occur. A factor analysis (PCA, varimax rotation; 34.0% of variance explained) pointed to the existence of two factors with item loadings higher than .40. Alpha coefficients were computed for the expected outcomes scales for aggression ($\alpha = .79$) and prosocial behavior ($\alpha = .52$). Then each factor was split into two according to the items which were coupled to the aggressive target or to the friendly target. In this way, each child had two scores per scale: one for the expected outcomes with an aggressive target ($\alpha = .72$ for aggression and $\alpha = .54$ for prosocial behavior) and another for the expected outcomes with a friendly target ($\alpha = .65$ for aggression and $\alpha = .25$ for prosocial behavior).

Results

Scenarios: steps 1, 2 and 3 of SIP and emotions

A 2 (gender) \times 2 (grade) \times 6 (role) analysis of variance with the six scales of the scenarios as dependent variables (e.g., encoding, hostility, anger, sadness, retaliation and prosocial goals) showed a trend effect for grade (Pillai's Trace = .06; $F(6, 195) = 1.94$;

$p < .10$), a significant effect for role (Pillai's Trace = .23; $F(30, 995) = 1.59$; $p < .05$), for the interaction between role and grade (Pillai's Trace = .24; $F(30, 995) = 1.66$; $p < .05$) and a trend for the interaction between role and gender (Pillai's Trace = .20; $F(30, 995) = 1.37$; $p < .10$). Univariate tests, means and standard deviations for the effect of role are shown in Table 1. As for grade, the univariate test did not reach significance. The interaction between role and grade was significant for anger ($F(5) = 2.35$; $p < .05$), which also yielded a trend in the interaction between role and gender. Bullies, defenders and children not involved said they would be angrier at grade 6 than at grade 5, compared to victims, outsiders and followers who said they would be angrier at grade 5. Boys said they would be angrier than girls when they were bullies or defenders. However, in absence of specific hypotheses, we did not explore these differences any further.

Roles did not differ from each other in encoding. As for the second step of SIP, both bullies and victims attributed more hostile intentions to the perpetrator in comparison to the other children. They all said they would be angrier than the other children, while victims said they would feel the saddest of the whole sample (a slight difference was also found between outsiders and followers, with the first saying they felt sadder). Victims wished to retaliate more often than their classmates did, while bullies chose retaliation more often than defenders. No differences were found for selecting prosocial goals.

Self-efficacy questionnaire: step 5 of SIP

Three effects attained significance when the MANOVA with the self-efficacy questionnaire as dependent variable was used. These were the main effects of gender (Pillai's Trace = .12; $F(3, 198) = 9.17$; $p < .001$), grade (Pillai's Trace = .04; $F(3, 198) = 2.96$; $p < .01$) and role (Pillai's Trace = .13; $F(15, 600) = 1.75$; $p < .05$). Boys thought more often than girls that it was easy to behave both aggressively

Table 1 Means, standard deviations (between parentheses) and tests of group differences of the raw scores of ambiguous scenarios as a function of role in the bullying situation

	Bully ($n = 21$)	Follower ($n = 38$)	Victim ($n = 35$)	Defender ($n = 48$)	Outsider ($n = 52$)	Not involved ($n = 32$)	F ($df = 5$)
Step 1							
Encoding	13.0 (2.0)	13.1 (1.9)	13.2 (1.4)	13.7 (1.4)	12.9 (1.8)	13.2 (2.0)	ns
Step 2							
Hostility	19.1 (9.5) [†] _a	15.2 (8.6) [†] _b	19.3 (7.5) _a	14.7 (8.0) _b	15.7 (7.1) [†] _b	13.8 (7.1) _b	3.47**
Emotions							
Anger	21.2 (8.1) _a	16.9 (6.4) _b	20.3 (6.2) [†] _a	17.0 (6.3) _b	17.8 (6.8) [†] _b	16.1 (6.0) _b	3.13**
Sadness	7.8 (4.3) _{bc}	6.9 (3.6) [†] _b	9.8 (3.4) _a	7.9 (3.2) _{bc}	8.2 (3.9) [†] _c	7.3 (3.5) _{bc}	2.11 [†]
Step 3							
Retaliation	5.5 (3.5) _{ac}	4.4 (4.2) _{bc}	6.3 (4.9) _a	3.3 (3.4) _b	4.2 (4.3) _{bc}	3.9 (3.3) _{bc}	3.57**
Prosocial	42.1 (13.2)	38.0 (13.0)	40.7 (12.0)	41.4 (12.5)	41.8 (12.4)	38.9 (11.7)	ns

Note: Means in the same row with different subscripts (a–c) differ significantly at $p < .05$, two-tailed ([†] $p < .10$) by the least significant difference test.

ns = non-significant. [†] $p < .10$. * $p < .05$. ** $p < .01$.

($F(1) = 27.01$; $p < .001$) and assertively ($F(1) = 7.88$; $p < .01$). Older children (sixth grade) were more self-confident regarding verbal persuasion than the younger ones ($F(1) = 5.48$; $p < .01$). Univariate tests, means and standard deviations for the effect of role are shown in Table 2. Bullies, victims and followers found it easier to behave aggressively than the other children. Bullies and followers also claimed they found it easy to persuade others verbally in comparison to defenders and outsiders (bullies also had higher scores than victims and children not involved). No role differences were found for ease in inhibiting aggression.

Expected outcomes questionnaire: step 5 of SIP

A multivariate analysis of variance was performed on the scale scores, with three between-subject factors (role in bullying, gender and grade) and one within-subject factor (target: aggressive or friendly peer). Three effects were significant. The first was the main effect of grade (Pillai's Trace = .08; $F(2, 198) = 8.51$; $p < .001$; univariate test: $F(1) = 16.03$; $p < .001$ for aggression). Children in fifth grade were less sure than those in sixth grade that aggressive behavior would be successful in reducing attacks from the perpetrator or in obtaining rewards. The second significant effect was the interaction between gender and grade (Pillai's Trace = .05; $F(2, 198) = 4.87$; $p < .01$; univariate test: $F(1) = 8.65$; $p < .01$ for aggression). While fifth grade boys were less sure than girls that they would obtain rewards by using aggression, one year later it was the other way around. The third significant effect was the within-subject effect (Pillai's Trace = .69; $F(2, 198) = 223.95$; $p < .001$). The univariate test of significance (Huynh-Feldt), means and standard deviations for the effect of target are shown in Table 3. Children thought that their behavior (either aggressive or prosocial) would be less successful if they were interacting with an aggressive child than if they were interacting with a nonaggressive child.

Association between role in bullying and reactive and proactive aggression

We investigated the link between involvement in bullying on the one hand and reactive and proactive

Table 3 Means, standard deviations (between parentheses) and tests of group differences on the expected outcomes questionnaire raw scores as a function of the target type

	Aggressive target	Friendly target	$F(df)$
Aggressive behavior	19.7 (3.1)	14.5 (3.0)	445.23 (1)***
Prosocial behavior	4.7 (1.6)	4.0 (1.2)	21.09 (1)***

*** $p < .001$.

aggression on the other by means of regressions. Since we did not find any effect due to different grade, we excluded this variable from the analyses. Gender was entered in the first step, the two scores for reactive and proactive aggression in the second step, and the interactions between these and gender in the third (the latter two steps entered using the stepwise method). As the scores of the dependent variables revealed some extreme cases, we ran the regression analyses on the scores after they had been normalized with the SPSS ranking program, which centers the means. In addition, the variable gender was centered (it was recoded into the values of -1 and $+1$ for boys and girls, respectively). The interaction between gender and the types of aggression did not yield any significant results and was therefore removed from the analyses, which were rerun without the interaction effect. Table 4 shows the results of the regressions obtained with the ranking procedure.

The results support our expectation that bullying is associated with both proactive and reactive aggression, while victimization is associated only with reactive aggression. Being a follower showed the same pattern as being a bully (it was related to both types of aggression), while being a defender was negatively related to reactive aggression and being an outsider was negatively related to both types of aggression. Bullies and followers were more often boys, while defenders, outsiders and victims were more often girls.

Discussion

Some authors (Rubin, Bream, & Rose-Krasnor, 1991, p. 222) defined social competence as 'the ability to achieve personal goals in social interaction

Table 2 Means, standard deviations (between parentheses) and tests of group differences of the self-efficacy questionnaire raw scores as a function of role in the bullying situation

	Bully ($n = 22$)	Follower ($n = 38$)	Victim ($n = 35$)	Defender ($n = 48$)	Outsider ($n = 52$)	Not involved ($n = 32$)	F ($df = 5$)
Aggression	23.2 (6.5) _a	23.9 (6.5) _a	21.8 (6.9) _{ac}	18.0 (5.3) _b	18.7 (6.0) _b	19.6 (6.0) _{bc}	2.14 [†]
Verbal persuasion	25.1 (2.1) _a	23.4 (3.6) _{ac}	21.9 (4.2) _{bc}	21.6 (4.9) _b	21.0 (4.9) _b	22.6 (3.7) _{bc}	2.27*
Inhibition	11.3 (3.6)	13.1 (4.0)	12.3 (3.6)	11.5 (3.6)	12.7 (4.0)	11.4 (3.7)	ns

Note: Means in the same row with different subscripts (a–c) differ significantly at $p < .05$, two-tailed ([†] $p < .10$) by the least significant difference test.

ns = non-significant. [†] $p < .10$. * $p < .05$.

Table 4 Regression of the RePro on the PRS

Variable		Predictors	β	R	R^2	R^2_{change}	$F(df)$
Bully	I step			.45	.20		58.06 (1)***
	II step	Gender	-.45***	.71	.50	.30	75.42 (3)***
		Gender	-.28***				
Follower	I step	Proactive	.37***	.49	.24		70.89 (1)***
	II step	Reactive	.22*	.72	.52	.28	80.21 (3)***
		Gender	-.49***				
Victim	I step	Gender	-.32***	.02	.00		.10 (1)
	II step	Proactive	.34***	.41	.17	.17	22.66 (2)***
		Reactive	.24*				
Defender	I step	Gender	.02	.43	.18		49.67 (1)***
	II step	Gender	.18**	.54	.29	.11	46.78 (2)***
		Reactive	.44***				
Outsider	I step	Gender	.43***	.41	.16		44.49 (1)***
	II step	Gender	.29***	.66	.43	.27	56.75 (3)***
		Reactive	-.36***				
	I step	Gender	.24***				
	II step	Proactive	-.28**				
		Reactive	-.28**				

* $p < .05$. ** $p < .01$. *** $p < .001$.

while simultaneously maintaining positive relationships with significant others' (cf. also Arsenio and Lemerise, 2001). According to this view the bullies' behavior, although effective for the bullies themselves, is not socially competent as it does not take into account the shared values of the group, social norms and peers' well-being. Our data seem to support the view of Crick and Dodge (1994) who claimed that the behavior of bullies is a result of a processing bias and of deficits in some stages of the SIP. However, it would appear that bullies are not the only socially inadequate subjects in our sample.

The results of the present study show that bullies and victims display more deficits in processing social information than other children in the class, and that they respond more emotionally to adverse conditions (Lemerise, & Arsenio, 2000; Pellegrini et al., 1999). We surmise that this similarity is due to their common reactive aggression. Indeed bullying was positively linked with reactive and proactive aggression, while victimization was only associated with reactive aggression. Bullies and victims are similar in their reactive aggression, i.e., they defend themselves with counter-aggression because they tend to perceive threats in certain situations and therefore to respond with anger and retaliation (Crick, & Dodge, 1994; Graham, & Juvonen, 1998). However, their reactive aggression, and therefore their way of processing social information, may have different reasons and motivations and produce different final behaviors.

Our results on the SIP framework only partially confirmed the claims of those studies which investigated the SIP of reactively and proactively aggressive children (Crick, & Dodge, 1996; Dodge et al., 1997; Dodge, & Coie, 1987), namely that reactively aggressive children (i.e., our victims and bullies) present deficits at the beginning of the SIP cycle, while proactively aggressive children (i.e., our bullies) show a different cognitive pattern in the final steps of the SIP cycle. In our studies, in fact, both bullies and victims were found to present deficits in almost every step of the SIP, supporting the circular formula of the SIP framework, in which every step influences the following one, as Crick and Dodge (1994) themselves suggested. We can therefore argue that if a child presents a cognitive bias when attributing intent, this is carried on along the whole process, through selection of antisocial goals, expression of anger, creation of aggressive responses, feeling of self-efficacy in performing aggression, and, possibly, in final enactment of the aggressive behavior. Bullies and victims interpret ambiguous situations as hostile, failing in the second step of SIP. As a consequence of their continued exposure to bullying, victims do not trust others (Champion, 2001; Smith, 1991), while bullies are so used to harassing others on purpose that they think everyone who behaves aggressively does so deliberately. They also were similar in anger, which is an emotion typical of reactively aggressive children

(Dodge, 1991; Dodge, & Coie, 1987; Loeber, & Coie, 2001). Their anger follows from holding others responsible for negative actions against them (Camodeca et al., 2003; Graham, Hudley, & Williams, 1992; Weiner, 1995) and could therefore be considered an experience factor. But it also seems possible that bullies and victims express anger as a consequence of their hot-headed temperament (in this case it would be anger leading to blame). The data do seem to support Arsenio and Lemerise's (2001) thesis that reactively aggressive children are easily aroused and more likely to behave aggressively as a result of outbursts of anger. As a consequence, hostile attributions and anger may lead to retaliation through the choice of aggressive goals (Crick, & Dodge, 1994; Graham, & Juvonen, 1998; Loeber, & Coie, 2001). In fact, another point of similarity between bullies and victims turned out to be their choice of retaliation. Victims may resolve to select goals which destroy the relationship either as a result of frustration and exasperation, or because they are not capable of behaving prosocially, or because they think that this is indeed a successful way of defending themselves from the bullies' attacks. However retaliation and reactive aggression are usually ineffective for them in gaining desired outcomes (Pellegrini et al., 1999; Salmivalli, Karhunen, & Lagerspetz, 1996; Schwartz, McFayden-Ketchum, Dodge, Pettit, & Bates, 1998) and could indeed even have the effect of making the bully more ruthless. On the other hand, bullies, being also proactively aggressive, may use retaliation as a further means to reach their own goals, such as for instance obtaining an object or achieving higher status in the peer group. In fact, they may bully because they find it easy and useful for their purpose (Sutton, 2001; Sutton, Smith, & Swettenham, 1999a).

Another similarity between bullies and victims is that both of them claimed to find it easy to behave aggressively. This may be influenced by anger, which could increase confidence in their capacity to retaliate aggressively. It can also be a consequence of the previous SIP step: if a person selects antisocial goals, it is likely that he/she feels confident of achieving them. Finding it easy to use aggression is in line with the role of bullies (Perry et al., 1986), because they need to feel capable of displaying aggression in order to obtain their goals. On the other hand, although victims may think it is easy to behave aggressively, they are unlikely to be able to defend themselves from attack in an effective way (Egan, & Perry, 1998; Salmivalli, Karhunen, et al., 1996). According to Paladino and Kochenderfer-Ladd (2001), victims need to feel active and able enough to cope with difficult situations.

In respect of two variables, bullies and victims differed from each other. The first was ease in using verbal persuasion, which was a characteristic only of bullies and followers. It might be possible that these children know that they have dominant status

among their classmates and can use it to persuade in other ways than aggression. However, studies by Salmivalli (2001) and Salmivalli, Kaukiainen, Kaistaniemi, and Lagerspetz (1999) found that bullies' self-esteem is not genuine, as bullies have a narcissistic view of themselves, characterized by self-aggrandizing tendencies, arrogance and dominance. Also, Schippell and Vasey (2001) reported that inflated ratings of self-competence were related to proactive aggression, which is typical only of bullies, and not to reactive aggression. Age can also play a role in ease in engaging in verbal persuasion, because we found that older children reported higher self-efficacy in this dimension, which could be influenced by the increase in verbal skills that takes place as children grow older.

The other variable which discriminates between bullies and victims was sadness. Victims were the only ones to report feeling sad when something unpleasant happened. They feel unable to cope with unpleasant situations and can count on only a few friends, if any (Hodges, Malone, & Perry, 1997; Pellegrini et al., 1999), which may increase their feeling of sadness. However, what we do not know is whether victims are more easily saddened than others, and therefore more likely to be victimized, or whether the fact that they are victims makes them more prone to sadness. It may be that for victims sadness is a secondary emotion which follows from their vulnerability, helplessness and incapacity to deal properly with others' aggression, which, in their turn, may even increase their own reactive aggression.

Although we did not find that bullies would expect more positive outcomes from aggression, the characteristics of the target were nevertheless important. Children thought that both aggressive and prosocial behavior would further their aims more often when the target was friendly than when he/she was aggressive. This outcome may reveal a common tendency to consider aggressive children as very difficult peers with whom to interact, independent of the type of interaction (i.e., aggressive or prosocial).

Defenders, outsiders and children not involved were all low on aggression (reactive and proactive). They did not meet aggression with aggression and did not use it to achieve their aims. They process social information in every step without using aggression. They do not make hostile attributions and, probably as a consequence, do not select antisocial goals (e.g., retaliation), nor do they express anger or sadness. Defenders are active children who stand up for those who are weaker and victimized; they are likely to be well adjusted and popular in the peer group (Salmivalli, Lagerspetz, et al., 1996). What is more, outsiders seem to have a capacity to avoid harassment and to develop an adjusted cognitive and emotional path. Further research is needed to uncover the characteristics which enable outsiders and children who are not involved to

remain detached from the bullying situation. It would be useful for the victims to learn such skills.

To summarize, we indeed found a similarity between bullies and victims in their cognitions and emotions (Camodeca et al., 2003; Karatzias et al., 2002), which may be due to their common reactive aggression and which is in line with those studies claiming that victimization is more closely related to externalizing problems and to aggression than to internalizing problems (Khatri, Kupersmidt, & Patterson, 2000; Kochenderfer, & Ladd, 1997; Schwartz et al., 1998). Further studies are needed to lend support to the finding that victims are probably not always or not exclusively shy and withdrawn as commonly thought, but that they may be reactively aggressive.

Some limitations to this study can be identified. It would be advisable to investigate whether the associations found are also valid for other age groups and whether such associations can be causally interpreted (for example, whether being reactively aggressive increases the chances of becoming a bully or a victim, or if it is the other way round). Of course, other causes may be found. Further research is needed to generalize the results and to delve deeper into SIP steps and emotions, such as the moral emotions of shame and guilt which may influence the behavior of children in the group (Menesini et al., 2003; Olthof, & Goossens, 2003). Also, the role of follower needs further investigation, because it seems that followers display the same types of aggression as bullies (i.e., reactive and proactive), but their social information processing is more similar to that of children not involved than of bullies. In this case an informant bias may be occurring: teachers may overestimate the aggression of followers, or, alternatively, followers themselves could lack an objective perception of themselves. Finally, since the PRS as used by us does not assess the role of bully/victim, including such a category could yield more interesting results.

However, we think the results of the present study contribute to the research into bullying, since new perspectives on cognitions and emotions have been advanced. The use of SIP, enhanced by the integration of emotions, and through its circular formula, proved to be a reliable theoretical model to describe the influence of early deficits on later steps. Applying the SIP model to the topic of bullying, focusing also on emotions, is of great importance in revealing the way of thinking, feeling and consequently behaving of bullies and victims and in intervening where biases occur.

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